DOCUMENT RESUME

ED 193 479 CE 026 850

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TITLE Developing Trends in Office Technology and Career Paths as Related to the Office of the Future. Abstract, Doctoral Dissertation.
PUB DATE 80
NOTE 25p.: Paper presented at the Annual Meeting of the American Educational Research Association (Boston, MA, April 7-11, 1980).

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Automation; Business Education; Career Development; *Clerical Occupations; Educational Background; Employment Level; *Futures (of Society); Inservice Education; Insurance Companies; Occupational Information; *Office Occupations; *Offices (Facilities); Promotion (Occupational); *Technological Advancement
IDENTIFIERS *Emerging Occupations; Job Classification; Job Titles; Ohio (Columbus)

ABSTRACT

A study sought to determine how features of the office of the future are related to career paths of office workers. Personal interviews were used to obtain data from 178 administrative, supervisory, and clerical persons employed by sixteen insurance companies located in the Columbus, Ohio, metropolitan area. Employees responded to questions relating to new office equipment, educational backgrounds, company-sponsored training/education programs, initial job classifications and/or titles that reflect new occupational specialties, career paths, and perceived career paths in the next three to five years. They also indicated on a forty-three-item, five-point rating scale the degree of importance of selected knowledges, skills, and personal traits for purposes of increasing their chances for advancement with their respective companies. Conclusions reached were (1) automated office systems are progressing rapidly, (2) three-fourths of the respondents had knowledge of advanced equipment, (3) employees perceived personal traits and knowledges as more important for promotion than shorthand and equipment operation skills, (4) new occupational specialties are emerging, (5) employees are usually hired at lower-level positions and progress to higher-level ones, (6) education beyond the baccalaureate degree is not necessary for promotion, and (7) businesses encourage employee participation in job-related, company-sponsored education/training programs. (YLB)

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ABSTRACT DOCTORAL DISSERTATION

DEVELOPING TRENDS IN OFFICE TECHNOLOGY AND CAREER PATHS AS RELATED TO THE OFFICE OF THE FUTURE

by

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Prepared for the 1980 Annual Meeting of the American Educational Research Association, April 7-11, 1980, in Boston, Massachusetts.

CE 026 850

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SUMMARY OF RESEARCH

Developing Trends in Office Technology and Career Paths
As Related to the Office of the Future

Personal interviews were used to obtain data from 41 administrative, 57 supervisory, and 80 clerical persons employed by 16 insurance companies located in the Columbus, Ohio, Metropolitan area. Employees responded to questions relating to (1) new office equipment, (2) educational backgrounds, (3) company-sponsored training/education programs, (4) initial job classifications and/or titles that reflect new occupational specialties, (5) career paths, and (6) perceived career paths in the next three to five years. Further, employees were asked to indicate on a 42-item, five-point rating scale the degree of importance of selected knowledges, skills, and personal traits for purposes of increasing their chances for advancement with their respective companies--present and future.

Major Findings

1. Automated office systems related to (1) word processing, (2) data processing, (3) micrographics, and (4) telecommunications were found to be a part of the present-day office technology. Allied to the four systems were CRT (Cathode-ray Tube) terminals that were accessible to or used by 52 percent of the respondents.

2. Continuing education programs were available to company employees through both the public school systems and/or company-owned facilities, and 77 percent of the respondents had participated in some type of training/education program.

INTRODUCTION, PROBLEM, AND PURPOSE

Pursuant to the proliferation of periodical literature suggesting that a new office environment was emerging, this study sought to determine how features of the office of the future, as perceived by administrative, supervisory, and clerical persons are related to career paths of office workers. Office employees responded to questions about (1) new office equipment, (2) knowledge, skills, and personal traits most needed by office workers--1978 and 1981, (3) educational backgrounds, (4) company-sponsored training/education programs that lead to career advancement, (5) initial job classifications and/or titles that reflect new occupational specialties, (6) career paths and perceived career paths in the next three to five years.

This study was designed to meet some of the challenges of change and the data collected should assist manpower planners, school counselors, and instructors to give better career guidance. Also, the information may be used by curricular planners and developers to better understand the features of the office of the future as they pursue the development of relevant classroom materials.

DELIMITATIONS AND LIMITATIONS

No attempt was made to examine in depth the office equipment. Instead, selected equipment items were examined via an investigation of skills, knowledges, and personal characteristics most needed by office

workers and by asking each person interviewed to name pieces of equipment used in 1978 that had not been used three to five years prior to 1978.

The research is limited in its generalizability to the extent that the sample was representative of office workers employed by insurance companies in the Columbus, Ohio, Metropolitan area. Conclusions drawn may indicate trends and patterns characteristic of all types of business firms, but caution must be exercised in making generalizations beyond insurance companies of comparable size and to companies located in other geographic regions of the United States. Information about job titles is peculiar to insurance companies and may or may not be indicative of titles used in other types of businesses.

PROCEDURES

After a pilot test of the procedures had been carried out in Louisville, Kentucky, personal interviews were used to obtain data from 41 administrative, 57 supervisory, and 80 clerical office personnel employed by 16 home office or parent insurance companies located in the Columbus, Ohio, Metropolitan area. Seven companies employing fewer than 125 persons were asked to provide 10 interviewees (2 administrative, 3 supervisory, and 5 clerical) and nine companies employing more than 125 persons were asked to provide 12 interviewees (3 administrative, 4 supervisory, and 5 clerical). Inasmuch as possible, an effort was made to get a random selection of personnel. The decision to interview multiple persons from each company was based on the fact that large companies have several departments that needed to be represented and

that the total population consists of a greater number of clerical and supervisory personnel than administrative personnel. Several reasons seemed important in the selection of insurance companies as a source of data. First, they are large utilizers of office personnel and computers. Secondly, multiple factors influence business firms and their organizational arrangements; thus, data can be interpreted in a more meaningful way if limited to a single category of firms where a geater consistency of terminology relates to job titles.

One to two days were spent at each company location, and the data were collected during a five-month period between May and September, 1978.

Development of Interview Schedule

The interview schedule consisted of two related but different procedures to gather the information about the office environment.

Part One. A schedule on which the researcher recorded interviewee responses relating to job history, educational backgrounds, continuing education since the date of employment, and new office equipment.

Part Two. Employees were asked to indicate on a 43-item, five-point rating scale the degree of importance of selected knowledges, skills, and personal traits for purposes of improving their chances of advancement with their respective companies in 1978 and 1981.

Estimates of Reliability

Using data collected from approximately one-third of the respondents, estimates of reliability were determined by calculating coefficient alphas

for knowledges, skills, personal traits, and overall indices for data applying to both 1978 and 1981. Internal consistency measures indicated strong reliability coefficients.

ANALYSIS AND INTERPRETATION OF THE DATA

Office Equipment

Already, new systems have transformed many office methods and procedures. Office systems related to (1) word processing, (2) data processing, (3) micrographics, and (4) telecommunications were found to be a part of today's office technology. Hardware and software associated with these four technologies were not completely new, but the technologies had been updated to include more powerful central processing units, faster printers, and more terminals for input, storage, retrieval, and revision of data. Fifty-two percent of the respondents used or had access to a CRT (Cathrode-Ray Tube). Micrographic systems featured automatic search capabilities, computer output microfilming, and the rotary, flat-bed, and step-and-repeat cameras for making micro images. Combined, copy machines used could copy both sides simultaneously, produce transparencies, reproduce in color, collate, and reduce or enlarge copy. The most frequently mentioned telephone system was the Bell Dimension 400. This is a touch-tone, programmable system that has a three-party internal-external feature. Another system found less often was the STAR/ADC, which can handle a large number of calls, features a minicomputer that monitors all incoming telephone lines and provides both operational and historical information.

Three-fourths of the interviewees had knowledge of other equipment

beyond that which they were presently using. Other systems being studied for future use were:

Satellite communications

Laser printers

Systems that integrate word processing and data processing into a single information system (These are already being used in a limited way.)

Microcomputers that plug into telephone lines

Expanded use of CRTs for more decision making

Facsimile processing

Minicomputers for specialized and departmental use (More software packages are available that use the language of laymen.)

Typewriters with additional electronic features

OCR (Optical Character Recognition) scanner equipment to eliminate some keyboarding activities

Envelope openers and extractor with photo scanners

For 1981, a larger number of respondents than for 1978 indicated ratings of "very important" or "extremely important" for the use of or knowledge about ten items relating to equipment that were included on a 43-item rating scale. An interesting observation for business education teachers is the fact that communication terminals, data retrieval, computer knowledge, and telephone techniques were viewed by a greater number of respondents to be more important than dictating and transcribing equipment.

Current Job Titles that Reflect New Specialties

Sixty-one job titles not found in the Dictionary of Occupational Titles, 1965, were recorded as present job titles and 47 titles were given as anticipated new titles. If unable to give exact anticipated titles, respondents said "more specialist" or more "systems managers" of various

types. Three-fourths of the respondents believed that job titles are changing to reflect new occupational specialties, and 40 percent felt that beginning job titles made a difference in how often or quickly one advances to another job. The 40 percent, however, represents responses from 156 persons rather than the usual 178 responses.

Company-Sponsored Education/Training Programs

Continuing education was available to employees through company-owned facilities and the public school system. The majority of companies had liberal policies relating to continuing education, but a few companies restricted educational opportunities to job-related activities. Interviewees could respond to five possible reasons for participation and more than one reason was given by several respondents. The greatest numbers indicated that their additional education/training had been for personal enrichment (61 percent) and for specialized, job-related (58 percent) purposes. Others had continued their education for college credits.

Career Paths and Career Expectations

About 80 percent of the administrative persons had started their careers with their respective companies at a level lower than supervisory and had climbed the career ladder via supervisory jobs. They had been employed by their companies 13.03 mean number of years.

Also, the majority of the supervisors had progressed from a level lower than supervisory. They had received from one to three clerical advances prior to becoming supervisors and had worked a mean of 9.86 years for their employers.

Technical/specialized personnel had spent 2.83 mean number of years at their first job, while those presently employed as clerks had spent

a mean of 6.06 years at their same job level.

The principal results from an analysis of the career paths of 178 interviewees are shown in Figure 1.[1] Using job history data from all respondents, the main line of progression is shown to originate at the clerical, technical/specialized level and to extend to the administrative level (managers and directors). The rectangles at the base indicate the number of interviewees who were classified as clerical and technical/specialized. (Technical/specialized is a job classification given by the investigator to employees whose first title with their present employer was different from clerical, supervisory, or administrative, 70 percent of whom started at a level lower than supervisory.)

The large circles in the vertical stem give the number of persons who had held that position, and the circled number "8" in the stem above the supervisor's circle is the number of technical/specialized persons who bypassed the supervisory positions and went directly to a management position. Upward pointing arrows in the vertical line contain the number of staff persons who moved from the previous job to the following one.

For the most part, supervisors and managers are very typical of the titles used. In a few instances, managers were called Second Vice-Presidents or Directors, but generally these titles were considered advances above the managerial level. Supervisors and managers were departmental titles. Generally, supervisors participated in the hiring and dismissal decisions, plus the distribution and handling of workloads.

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[1] Figure 1 is modeled similarly to an illustration used by Terry Morgan. "A Study of Career Paths in an Organization," Air Transport and Travel Industry Training Board Bulletin. Staines, Middlesex, 1974.

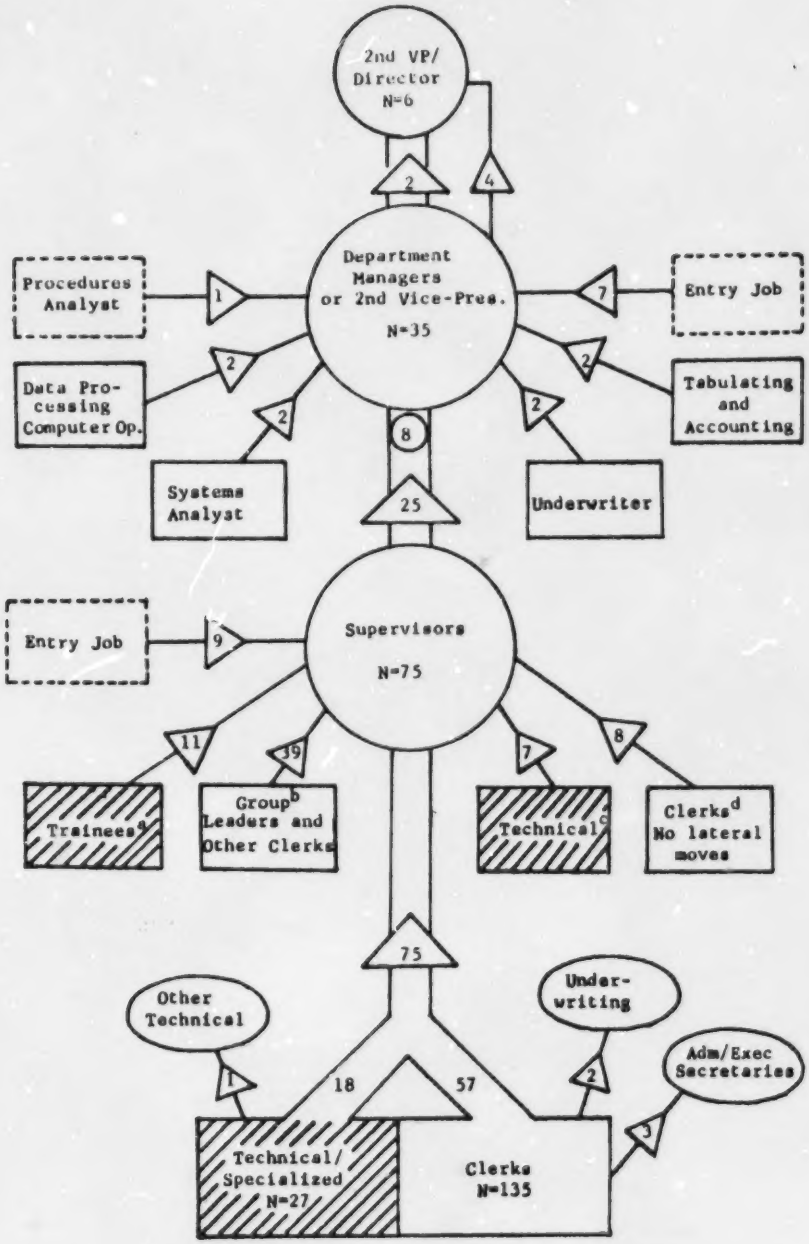

Figure 2. A Study of Career Paths of Administrative, Supervisory, and Clerical Persons (N=178)

[a]Management, Underwriting and Programming Trainees

[b]Clerks who have had from one to four lateral moves, advances (Includes six persons with secretarial-like experience)

[c]Procedures Analyst, Programmer, Computer Operators, Training, and License Administrators/Clerks

[d]Clerks who entered supervisory work with no lateral advances at the clerical level (Underwriting, Accounting, Keypunch, Rate, and Policy)

A variety of anticipated job titles were given by all respondents, but the majority of managers/directors expected their next job title to be vice president, 60 percent of the supervisors expected to become managers, and 55 percent of clerical persons expected to advance via supervisory channels. Figures 2, 3, and 4 represent the responses of three groups to questions asked of each individual regarding expectations for next job title. One company from which a sample was obtained had very dissimilar titles, especially above the clerical level. The ovals labeled "other" include these dissimilar titles.

Relationship Between Beginning Job Titles and Career Success

Technical/specialized job classifications seemed to influence speed of advancement. Ninety-one percent of all respondents (N=162) had beginning job titles that were classified as either clerical or technical/specialized. The chi-square statistic was used to test the null hypothesis that respondents with a title classified as clerical do not differ from those classified as technical/specialized in the number of promotions (level advances) received. The resulting chi-square was significant at the .05 level; therefore, the null hypothesis was rejected.

Educational Backgrounds

All administrative level persons (N=41) had four years of high school and 93 percent had education beyond the high school level. Among the college-educated administrators, 13 had completed baccalaureate degrees.

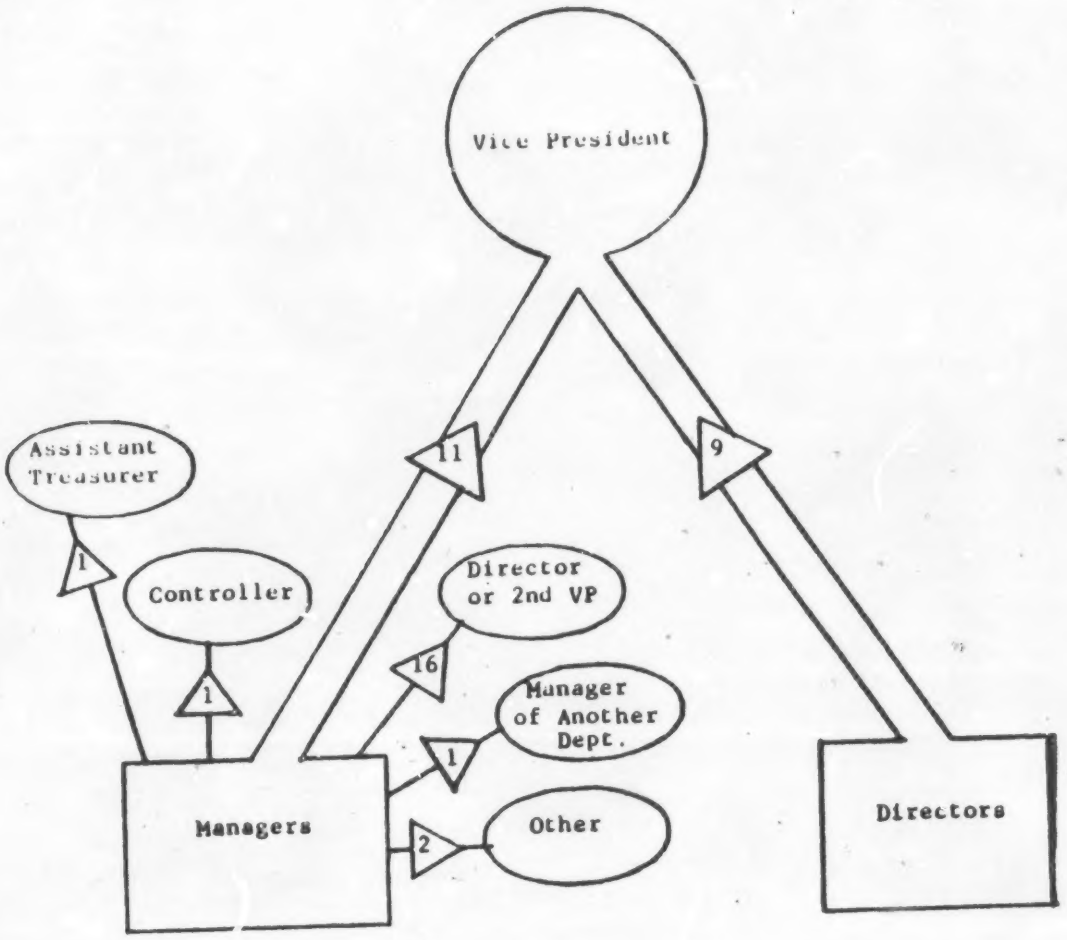

Figure 2. Next Anticipated Job Titles of Managers and Directors (Administrative Level Interviewee, N=41)

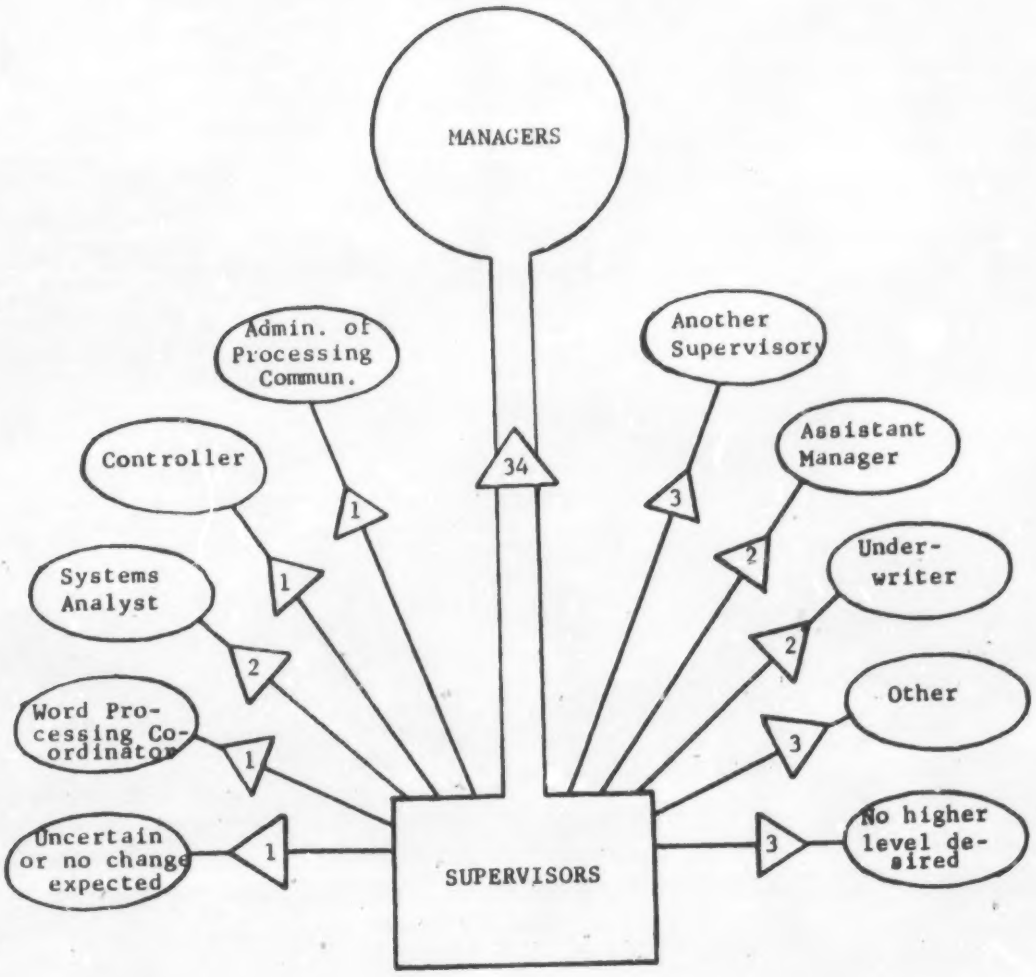

Figure 3. Next Anticipated Job Titles of Supervisory Interviewees (N=57)

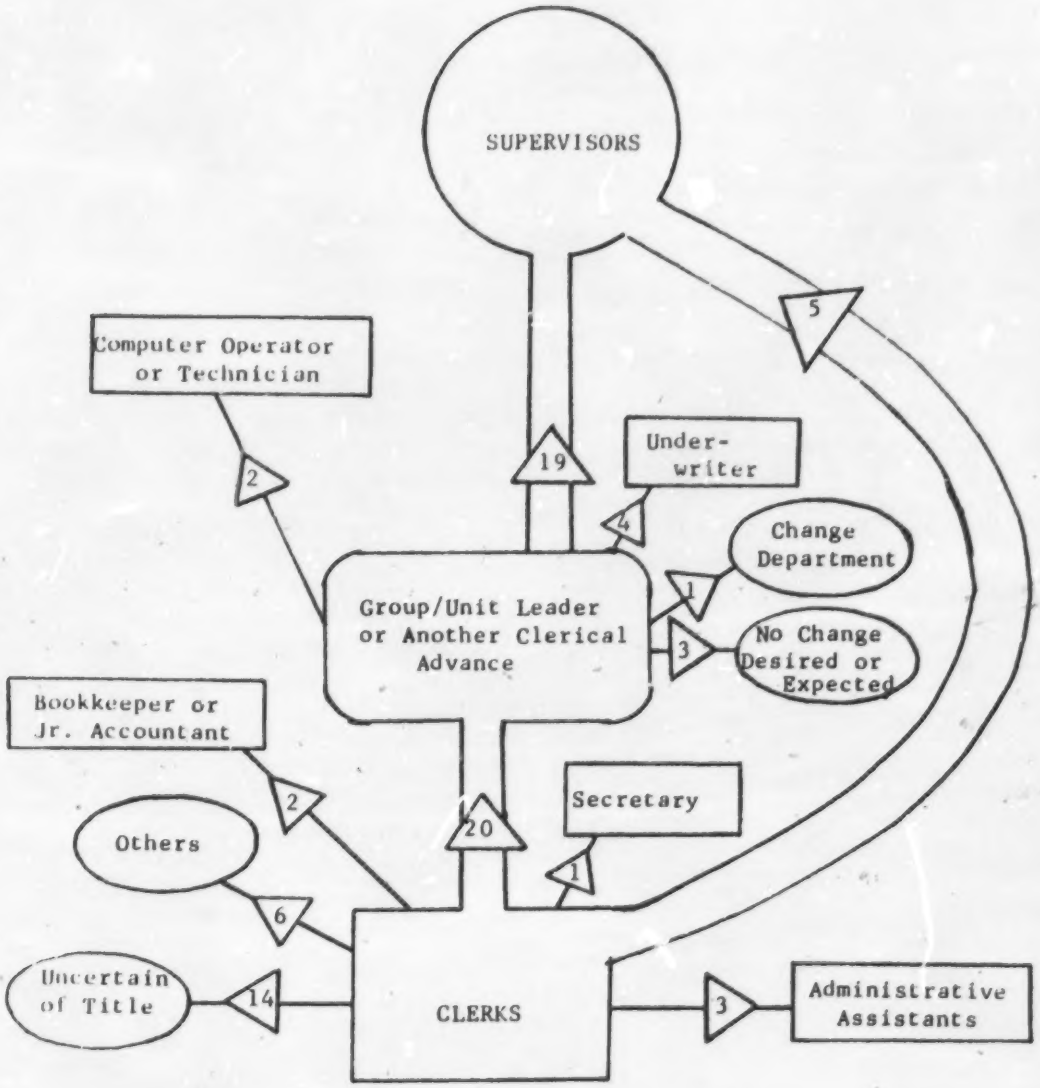

Figure 4 Next Anticipated Job Titles of Clerical Interviewees (N=80)

Supervisory persons (N=57) had less education, but all had completed high school. Sixty-two percent had education beyond high school, 11 had baccalaureate degrees, and 2 persons had five years of college.

The percentage of clerical persons (N=80) educated beyond high school did not vary as much as did the types of education and number of years. All but one clerical person had completed high school, 55 percent had some post secondary or college education, and 3 persons had baccalaureate degrees.

All persons who had beginning jobs classified as technical/specialized, 70 percent of whom had first jobs lower than supervisory, had education beyond high school. Their education differed most from the clerical group in that 70 percent of the group had from 3 to 6 years of college and only 21 percent of the clerical persons had from 3 to 6 years of college.

Relationship Between Education/Training and Career Success

To ascertain relationships between education/training and number of promotions received, the chi-square statistic was used to test null hypotheses of (1) no relationship between participation in company-sponsored training programs within the last five years and the number of promotions received, and (2) no difference in the amount of education earned beyond high school and the number of promotions received. Levels of significance did not warrant the rejection of these two null hypotheses.

Knowledges, Skills and Personal Traits Important for Career Success

Even though the ten items relating to knowledge about equipment were rated as "very important" or "extremely important" by a greater number of respondents for 1981 than in 1978, ratings of items listed as personal traits were perceived by interviewees to be of greater importance for purposes of advancement than were knowledge and skills items.

Given in the order of their perceived importance, decision-making ability, self-confidence, honesty, problem-solving ability, and initiative received the highest mean ratings by administrative personnel for 1978. Similar ratings were shown for 1981 with the execption of "flexibility" which was not among the top five items for 1978, but ranked second in order of importance for 1981. Items having the highest rank order for 1978 by the supervisory group were honesty, flexibility, and desire for self-improvement. For 1981, flexibility was perceived to be "extremely important" by every supervisory respondent.

When items were ranked by the clerical group, honesty, self-confidence, management of time, flexibility, and desire for self-improvement were perceived to be most important for 1978 and 1981. The rank order for these items differed only in the fact that flexibility was ranked fourth in 1978 and third in 1981. Mean values and rankings are given in Table 1 and 2. As is indicated in Table 2, mean values are very similar for some of the highest ranked items, which necessitates caution to avoid misrepresentation of the data. Kendall's tau was used to secure a measure of the correlation between ratings for 1978 and 1981. The agreement between 1978 and 1981 ratings was evidenced by the large number of correlation coefficients that were significant at the .001 level.

Table 1

Mean Value Ratings on Five-Point Rating Scale for Importance of Possessing Knowledges, Skills, and Personal Traits To Further Chances of Advancement

Knowledges, Skills, Personal Traits	Administrative		Supervisory		Clerical	
	1978	1981	1978	1981	1978	1981
Knowledges:						
1 Basic computer knowledge	4.12	4.43	3.66	4.33	3.01	3.92
2 Planning ability	4.74	4.83	4.42	4.63	3.92	4.37
3 Problem-solving ability	4.83	4.86	4.47	4.75	4.07	4.47
4 Decision-making ability	4.88	4.95	4.58	4.77	4.09	4.47
5 Organizing and scheduling work	4.48	4.71	4.61	4.61	4.38	4.59
6 An understanding of the creation and storage of microforms	2.96	3.43	2.39	3.32	2.37	3.38
7 Economic understandings	3.45	3.93	2.89	3.54	2.43	3.29
8 Education relating to human behavior	4.33	4.38	4.19	4.51	3.53	3.94
9 Basic accounting concepts	3.14	3.48	3.16	3.61	2.83	3.20
Skills:						
10 Basic writing	4.09	4.14	3.91	4.14	3.53	3.85
11 Basic business mathematics	3.62	3.69	3.74	3.88	3.50	3.68
12 Advanced mathematics	2.52	2.81	2.51	3.09	2.29	3.03
13 Speaking	4.21	4.45	4.26	4.51	3.99	4.25
14 Listening	4.64	4.79	4.67	4.74	4.54	4.57
15 Spelling	3.54	3.62	3.80	4.04	3.97	4.06

Table 1 Continued

Knowledges, Skills, Personal Traits	Administrative 1978	Administrative 1981	Supervisory 1978	Supervisory 1981	Clerical 1978	Clerical 1981
16 Computer language	2.90	3.31	2.79	3.60	2.64	3.50
17 Fast to average shorthand (90 to 120 wpm)	1.31	1.10	1.24	1.25	1.40	1.65
18 Slow to average shorthand (60 to 80 wpm)	1.28	1.14	1.16	1.17	1.47	1.68
19 Machine transcription (includes punctuation)	1.61	1.48	2.09	2.37	2.58	2.82
20 Dictating	2.89	2.98	2.21	2.54	1.89	2.30
21 Typewriting (Beyond 50 wpm)	1.45	1.33	2.21	2.35	2.83	2.96
22 Typewriting (35 to 50 wpm)	1.74	1.67	2.53	2.67	3.06	3.30
23 Telephone	3.86	3.90	4.19	4.26	3.87	4.17
24 Ability to access information from data banks (Magnetic disks to microform)	3.43	4.10	2.58	3.42	2.53	3.43
25 Operate communications terminals	3.02	3.79	3.10	3.67	2.86	3.68
26 Operate optical character recognition (OCR) equipment	1.98	2.88	1.96	2.77	1.66	2.60
27 Operate automatic typewriter	1.54	1.64	2.35	2.56	2.65	3.17
28 Arrange teleconferencing	2.02	2.48	2.02	2.67	1.90	2.56

Table 1 Continued

Knowledges, Skills, Personal Traits	Administrative 1978	Administrative 1981	Supervisory 1978	Supervisory 1981	Clerical 1978	Clerical 1981
Personal Traits:						
29 Organizational loyalty	4.55	4.57	4.56	4.65	4.25	4.61
30 Honesty	4.86	4.86	4.98	4.91	4.81	4.86
31 Self-Confidence	4.86	4.83	4.72	4.74	4.71	4.81
32 Assertiveness (When an idea is important, speak out--midway between passivity and aggressive)	4.76	4.76	4.40	4.63	4.30	4.59
33 Flexibility (Can adapt to change)	4.79	4.90	4.89	5.00	4.63	4.76
34 Aggressive (Demanding--vigorously pursue)	3.98	3.98	3.79	3.86	3.50	3.94
35 Self-reliance	4.64	4.74	4.61	4.70	4.46	4.69
36 Use initiative and imagination	4.81	4.76	4.61	4.68	4.06	4.48
37 Willingness to take risks	4.55	4.52	4.12	4.33	3.53	4.01
38 Work under pressure	4.69	4.60	4.63	4.75	4.39	4.59
39 Desire for self-improvement	4.79	4.67	4.79	4.84	4.56	4.75
40 Good appearance	4.36	4.26	4.56	4.67	4.45	4.62
41 Career-oriented background (Definite career goals)	4.29	4.45	3.95	4.47	3.54	4.01
42 Getting to know the right persons	3.24	3.36	3.11	3.39	3.22	3.44
43 Management of time	4.79	4.81	4.58	4.79	4.56	4.77

Table 2

Rank Order of Knowledges, Skills, and Personal Traits for 1978 and 1981: All Groups

Item No. and Label	Administrative		Supervisory		Clerical	
	1978	1981	1978	1981	1978	1981
Knowledges:						
1 Computer	21	19	26	20.5[a]	24	28
2 Planning Ability	10	5.5[a]	15	14.5[a]	16	18
3 Problem-Solving Ability	4	3.5[a]	14	6.5[a]	13[a]	14
4 Decision-Making Ability	1	1	10.5[a]	5	13[a]	13
5 Organizing, Scheduling	16	12	8	16	8	10
6 Microform	32	31	37	33	31	37
7 Human Behavior	27	25	30	30	32.5[a]	36
8 Economic Understanding	18	20	18.5[a]	17.5[a]	22	21.5[a]
9 Accounting Concepts	30	30	27	28	34	30.5[a]
Skills:						
10 Writing	22	22	22	23	25	21.5[a]
11 Basic Business Math.	25	28	25	25	27	25
12 Advanced Mathematics	35	36	34	34	36	38
13 Speaking	20	18	17	17.5[a]	17	16
14 Listening	12.5[a]	8	5	8.5[a]	11	6
15 Spelling	26	29	23	24	19	17

Table 2 continued

Item No. and Label		Administrative		Supervisory		Clerical	
		1978	1981	1978	1981	1978	1981
16	Computer Language	33	33	31	29	28	32.5[a]
17	Fast Shorthand	42	43	42	42	43	43
18	Slow to Av. Shorthand	43	42	43	43	42	42
19	Machine Transcription	39	40	39	40	38	34
20	Dictating	34	34	37.5[a]	39	41	40
21	Fast Typewriting	41	41	37.5[a]	41	37	30.5[a]
22	Slow Typewriting	38	38	33	36.5[a]	32.5[a]	27
23	Telephone	24	26	18.5[a]	22	18	19
24	Access from Data Banks	28	23	32	31	29.5[a]	35
25	Op. Communication Terminal	31	27	28.5[a]	27	26	29
26	Optical Character Rec.	37	35	41	35	39	41
27	Automatic Typewriter	40	39	36	38	35	32.5[a]
28	Arrange Teleconfer.	36	37	40	36.5[a]	40	39
Personal Traits:							
29	Organizational Loyalty	14.5[a]	15	12.5[a]	13	15	12
30	Honesty	3	3.5[a]	1	2	1	1
31	Self-Confidence	2	5.5[a]	4	8.5[a]	2	2
32	Assertiveness	9	10	16	14.5[a]	10	11
33	Flexibility	7	2	2	1	4	3
34	Aggressive	23	24	24	26	23	24
35	Self-Reliance	12.5[a]	11	8	10	6	7.5[a]

Table 2 continued

Item No.	and Label	Administrative 1978	Administrative 1981	Supervisory 1978	Supervisory 1981	Clerical 1978	Clerical 1981
36	Initiative and Imagination	5	9	8	11	13[a]	15
37	Take Risks	14.5	16	20	20.5[a]	20.5[a]	21.5[a]
38	Work Under Pressure	11	14	6	6.5[a]	9	9
39	Desire for Self Improvement	7[a]	13	3	3	5	4.5[a]
40	Good Appearance	17	21	12.5[a]	12	7	7.5[a]
41	Career Oriented	19	17	21	19	20.5[a]	21.5[a]
42	Getting to Know Rt. Pr.	29	32	28.5[a]	32	29.5[a]	26
43	Management of Time	7[a]	7	10.5[a]	4	3	4.5[a]

[a]Repeated rank-order numbers indicate a two-way or three-way tie in mean rank-order rating.

CONCLUSIONS

1. Automated office systems are progressing at a brisk pace as was evidenced by existing systems such as telecommunications, micrographics, word processing, and data processing.

2. Employees are well aware of trends that relate to the office of the future, as three-fourths of the respondents had knowledges of other equipment beyond that which they were presently using.

3. Office systems that integrate word processing and data processing into a more comprehensive and "intelligent" information processing system are anticipated office systems for the future.

4. Minicomputers will become an integral part of office operations and procedures.

5. A new group of job titles are emerging that make more specific the duties of clerical/secretarial and technical persons.

6. Employees perceive "personal traits" and "knowledges" as being of greater importance for purposes of promotions than shorthand skills and skills relating to the operation of automated equipment.

7. New occupational specialties are emerging as was evidenced by the number of new job titles, new office equipment, and the number of persons who participated in specialized, job-related training programs.

8. Usually employees are not hired directly into high-level positions, but instead they progress from lower-level positions to higher-level positions over a period of several years.

9. Beginning job classifications appear to influence the speed of advancement within organizations. Clerical persons can advance to administrative level positions, but progression is slower and for a fewer number of employees than those who have technical knowledge.

10. Education beyond the baccalaureate degree is not necessary for purposes of promotions in business firms.

11. Education beyond high school appears to influence beginning job classifications.

12. Business firms seem to encourage employee participation in company-sponsored education/training programs that are job related.

RECOMMENDATIONS FOR FURTHER STUDY

1. Are teachers of business and office administration education aware of the components of the office of the future?

2. What are the career paths of office personnel in organizations other than insurance companies?

3. For employees to function successfully in the office of the future, should educational backgrounds be more diversified or specialized?

4. Would a change in departmental title from "office administration" to "office systems" influence business firms to give different initial job classifications to present graduates of office administration departments?

5. Are features of the office of the future more or less pronounced in other regions of the United States than in the Columbus, Ohio, Metropolitan area?

6. What specific changes in office methods, procedures, and personnel are evidenced by equipment additions and deletions?